

WE CLAIM:

1. A simplified, weak GPS C/A code coherent acquisition method comprising the steps of:

receiving a weak global positioning system C/A code digitized data signal of a length of N ms;

generating a complex radio frequency digitized signal with a length of N ms as a local reference signal;

first multiplying said digitized data signal from said receiving step with said digitized complex radio frequency signal;

dividing an output of said multiplying step into N equal sections;

adding data in N equal sections together from said dividing step;

first applying a fast Fourier transform to an output of said adding step;

considering 1ms of digitized C/A code of a preselected GPS satellite;

second applying a fast Fourier transform on the output of said considering step;

taking a complex conjugate of an output of said second applying step;

second multiplying an output of said taking step with output of said first applying step; and

taking an inverse fast Fourier transform of the output of said second multiplying steps, an index of the maximum of said inverse fast Fourier transform being the initial phase of the C/A code.

2. The simplified, weak GPS C/A code coherent acquisition method of claim 1 wherein said dividing step further includes the step of dividing an output of said multiplying step into 10 equal sections.

3. The simplified, weak GPS C/A code coherent acquisition method of claim 2 wherein said dividing step further includes the step of dividing an output of said multiplying step into 10 equal sections each containing 5000 data points.

4. The simplified, weak GPS C/A code coherent acquisition method of claim 1 wherein said receiving step further includes the step of receiving a weak global positioning system C/A code digitized data signal of a 10 ms length.

5. The simplified, weak GPS C/A code coherent acquisition method of claim 1 wherein said generating step further includes the step of generating a complex radio frequency digitized signal 10 ms long with a frequency of 100 Hz.

6. The simplified, weak GPS C/A code coherent acquisition method of claim 1 wherein said second applying step further comprises the step of second applying a 5,000 point fast Fourier transform on the output of said considering step.

7. The simplified, weak GPS C/A code coherent acquisition method of claim 1 wherein said taking step further comprises the step of taking a 5,000 point inverse fast Fourier transform of the output of said second multiplying steps.